

7. (Amended) A telecommunications system, as claimed in [any previous] claim 1, [characterised in that] wherein said transmitter comprises [an] a b-bit buffer and encoder for receiving an input bit stream at a rate of R bit/s, [a] an n-point IDFT processor for receiving an output from said b-bit buffer and encoder, extension means for adding a cyclic extension to an output of said IDFT processor, a pulse shaper for shaping a DMT symbol output from said extension means, and a digital to [analogue] analog converter and low pass filter for converting a DMT symbol received from said pulse shaper to [analogue] analog form and passing said DMT to a transmission channel.

8. (Amended) A telecommunications system, as claimed in [any previous] claim 1, [characterised in that] wherein said receiver includes an [analogue] analog to digital converter for [digitising] digitizing a DMT symbol received from a transmission channel, a windowing unit connected to an output of said [analogue] analog to digital converter, a stripper unit for removing cyclic extensions to said DMT symbol, an n-point DFT processor for receiving an output from said stripper unit, a frequency domain [equalisation] equalization unit for receiving an output from said n-point DFT unit and decoder, and a b-bit buffer for receiving an output from said frequency domain [equalisation] equalization unit and outputting a bit stream at R bit/s.

9. (Amended) A modem for use in a transmission system as claimed in [any of claims 1-6] claim 1, [characterised in that] wherein said modem includes a transmitter as claimed in claim 7.

10. (Amended) A modem as claimed in [claims] claim 9, [characterised in that] wherein said modem includes a receiver as claimed in claim 8.

11. (Amended) A method in a telecommunication system having at least two VDSL systems adapted to asynchronous transmit DTM-symbols between each pair of modems having at least two VDSL systems, each comprising a pair of modems, said at least 476249.1

two VDSL systems belonging to a binder group common to both VDSL systems, [characterised by] comprising the steps of:

- in a transmitter in a first modem in a pair of modems
 - cyclic extend a DTM-symbol by way of adding a prefix and a suffix;
 - pulse shaping side lobes of the cyclic extended DMT-symbol;
 - transmit the cyclic extended and pulse shaped DMT-symbol to a transmission channel;
- and in a receiver in a second modem in the pair of modems
 - windowing the DTM-symbol which transmits on the [transmissionchannel] transmission channel by way of multiplying μ samples at the beginning and end of a block of $2N+\mu$ samples; folding and adding $\mu/2$ samples from the beginning of the $2N+\mu$ block of samples to the end of the $2N$ remaining samples; and folding and adding $\mu/2$ samples from the end of the $2N+\mu$ block of samples to the beginning of the $2N$ remaining samples, and removing said cyclic extension from a DTM-symbol.

12. (Amended) A method, as claimed in claim 11 [characterised by] further comprising adding a cyclic extension [is] to DMT symbols, said cyclic extension comprising:

- a suffix which is greater than, or equal to, a channel's propagation delay; and
- a prefix which is greater than, or equal to, a guard time needed to eliminate inter-symbol interference.

13. (Amended) A method as claimed in claim 11 [or 12], [characterised by] further comprising forming said pulse shaped wings as a raised cosine pulse.

14. (Amended) A method as claimed in [any of claims 11 to 13] claim 11, [characterised by] further comprising performing said pulse shaping at a transmitter after addition of a cyclic extension to a symbol and prior to digital to [analogue] analog conversion.